Exhibit 59

SUPERIOR COURT OF NEW JERSEY
LAW DIVISION - MIDDLESEX COUNTY
DOCKET NO. MID-L-7385-16AS

STEPHEN LANZO, III and KENDRA LANZO,

Plaintiffs,

v.

CYPRUS AMAX MINERALS CO., et al.,

Defendants.

VIRTUAL
DEPOSITION UPON
ORAL EXAMINATION
OF
WILLIAM E. LONGO
Ph.D.
(VOLUME II)

TRANSCRIPT of the stenographic notes of ANDREA F. NOCKS, a Certified Court Reporter and Certified Realtime Court Reporter of the State of New Jersey, Certificate No. XI01573, taken virtually on Monday, October 30, 2023, commencing at 11:18 a.m. to 3:01 p.m. Eastern Standard Time.

JOB NO.: 6168098

W I L L I A M E. L O N G O, Ph.D.,
3945 Lakefield Court, Suwanee, Georgia, having been first duly sworn, testifies as follows:
CONTINUED DIRECT EXAMINATION BY MR. DUBIN:

Q. Hi, Dr. Longo, how are you? So I think when Kevin left off with you, the last exhibit number was 15. So we'll start at 16 here.

We'll make 16 the notice of your deposition for today.

Exhibit 17 will be a cover e-mail that we received that contained a link to some additional materials for your deposition today that was received very close to the start of the deposition, I think, around 10:38 or so this morning.

And so first, do you have the materials that went along with that link, Dr. Longo?

A. Yes.

Q. So, I just want to mark those so we know what they are, and then we'll see what, we could probably come back to questioning about them later.

So, can you just walk through each one of them in the order that you have them, and we'll just make them each a separate exhibit? Or I

BY MR. DUBIN:

Q. Okay. So, I just want to walk through and make sure I understand each part of the step of how you're doing the averages for birefringence.

So, tell me explicitly how you're doing it, how you're identifying which particles to include in the average, what specific calculation you're doing. Like, just what is the methodology so I make sure I understand.

MR. MAIMON: Object to form.

Go ahead.

A. When we identify chrysotile, we'll give a -- typically we'll give a range of, the range on the worksheet. We'll give a range of wavelengths, matching wavelengths, and a range of refractive indices that go with those matching wavelengths. Now, that's where all the particles that we may analyze.

We typically will pick four to five structures that kind of represent what we're seeing in there, and then we get photomicrographs of both the parallel and perpendicular, cross-polars, elongation and no polars. So we usually take five photographs.

If there is a range, say, for gamma, we put the range down. Say, hypothetically it's, you know, 1.- -- 1.565 and 1.560. And then we'll give the range of the alpha, 1.560. And then we'll give a range of the alpha which could be, you know, 1.559 and, you know, 1.554. And that is for one of the particulate -- one of the chrysotile bundles.

Then to determine the refractive birefringence, we'll take the highest gamma, 1.565, and subtract out the highest alpha, 1.559, which gives us a birefringence of 0.006. And then we take the next one, 1.560, 1.554. That happens to be 0.006 also. The average of that would be 0.006 birefringence, and that's in the range of what EPA says is the range of birefringence for chrysotile.

Now, sometimes we just have -- not a range, but we have one alpha and one gamma. In that case, the Sanchez method works, 'cause you only have one choice: the alpha that goes along with that gamma. That's it. And you just subtract it out and it gives you the birefringence.

Q. I want to break this down into a little bit more so we're clear.

First, let's talk about an individual particle. You only identify one particle, okay?

gammas. So it just depends.

Q. So, I don't understand. So, you're looking for -- to put into the pile of the particles that you're going to include in the average, you're looking for -- first, for particles that have different refractive indices?

A. We look for representation of what's in the sample. Sometimes you'll have, you know, one chrysotile bundle, maybe 1.561, and -- on the low side, and 1.566 on the high side, we might see another one that, you know, is 1.560 but it has a 1.571. You know, I look for different colors.

Q. Is there --

A. They're not, like, out of range, but they're in what we continuously see. I just try to get a sampling of what's in that particular sample.

Q. So, is there any protocol, written protocol, for deciding how the particles are going to be selected to go into the averages?

MR. MAIMON: Object to form.

A. I don't know if there's any protocols out there that says select -- select particles that are representative of the sample. But I think that's pretty basic science.

Q. I'm just asking for you -- in other

words, you know you're not selecting the first five particles that you see, you are selecting them based on some criteria that you consider representativeness, but also, I think you indicated you're looking for particles that have different refractive indices?

MR. MAIMON: Object to form.

A. Well, different colors. You know, slightly -- sometimes you'll see more yellow -- in 1.550 you'll see more yellow; sometimes you'll see a yellowish gold. Sometimes you'll see, you know, a reddish-type gold. Or sometimes you're only going to find four, five structures. So, you have to take that into account, too. If the entire sample only gives you four to seven structures, you can't be too choosy.

Q. But there is no a priori set of guidelines that someone needs to follow for purposes of making this determination of what should be included in the average?

MR. MAIMON: Object to form; objection, asked and answered.

Q. Is that right?

MR. MAIMON: Same objection.

A. I guess -- no, I don't think anybody

has spelled out the basic science behind it, but if you were to look at the ranges that R-93 gives, they have a range where whatever references they'd come up with, they have this big range. Or if you look at, you know, Deer, Howie and Zussman, they'll have a range there that they feel is appropriate, but it doesn't mean that anything you see has got to be in that range. You're going to have some that are in the range and sometimes out of the range. It just depends -- not out of the range, but your birefringence typically stays the same. It's the same memo. It's just that you won't be exactly on the same alpha and the same gamma.

Q. So, before you include a particle in the bucket of, let's look at the birefringence, you know, in other words, let's use it for purposes of the average of birefringence, have you already made a determination that that particle is chrysotile?

A. Before we calculate the birefringence?

Q. Before -- when you're looking around, selecting particles to include in your averages, when you're selecting a particle, have you already made a determination that, in your view, that particle is chrysotile?

you're also going to have a low gamma and low alpha. If you just have one gamma or one alpha, then no, you don't have a range. You can't call it high or low. It's just two there.

Q. And so, again, can you identify any source, scientific source, that says that for calculating birefringence, you should use the high alpha and the high gamma?

MR. MAIMON: Object to form; objection, asked and answered.

A. You mean the entire Deer, Howie and Zussman? I don't know if it says it, but every one of their biaxial isotropic -- isotropic -- anisotropic minerals has that. If you do the math there -- I mean, I've got to be honest with you, I just don't think anybody really does this, whatever question that this is somehow unique, that you have to spell that out.

Q. I know what you're saying, but I'm just asking you: Have you ever seen any source that defines alpha as the high alpha and gamma as the high gamma for the purposes of birefringence calculations? Can you identify anything that actually says that?

MR. MAIMON: Object to form;

objection, asked and answered.

A. If you have a range? I never really looked for actual words. You know, maybe in -- you know, maybe in a class somewhere -- you know, I don't know. To me, it's just obvious.

Q. What PLM classes have you taken?

A. What?

Q. What classes have you taken in PLM dispersion staining?

A. I haven't taken any.

Q. Okay. How did you learn to do PLM dispersion staining?

A. Self-taught. It's not really that hard. And sometimes if you just sit down and learn the science behind it, it's pretty -- you know, it's more -- it is more complex than simple transmission electromicroscopy for asbestos analysis. But it's very interesting to me. I had fun learning all about this.

Q. Okay. And are there any individuals outside of MAS that you recognize to be authorities in PLM dispersion staining analysis?

A. It's an interesting question.

Are they doing an actual calculation of birefringence? I'm not sure anybody is a

CERTIFICATE OF OFFICER

I CERTIFY that the foregoing is a true and accurate transcript of the testimony and proceedings as reported stenographically by me at the time, place and on the date as hereinbefore set forth.

I DO FURTHER CERTIFY that I am neither a relative nor employee nor attorney or counsel of any of the parties to this action, and that I am neither a relative nor employee of such attorney or counsel, and that I am not financially interested in the action.

ANDREA NOCKS, CCR, CRR

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